

Amendment Under 37 C.F.R. § 1.111
USSN 10/626,697
Attorney Docket Q76660
August 3, 2004

AMENDMENTS TO THE SPECIFICATION

Page 3, please amend the third paragraph as follows:

Similarly, the second ducted rotor 2 includes a propeller ~~a propeller~~ 6 able to rotate within a circular shaped annular cowling 7 whose inner diameter is slightly greater than the longitudinal dimension of the propeller 6.

please amend the fifth and sixth paragraphs to read as follows:

The shape of the propellers 4 and 6 is ~~optimised~~ optimized in order to generate the best possible thrust. Moreover, the two propellers 4 and 6 advantageously have different profiles in order to ~~optimise~~ optimize thrust according to the airflows on the propellers themselves: the first propeller 4 receives air whose velocity is equal to the velocity of advance of the aircraft, whilst the second propeller 6 also receives the air exiting the first propeller ~~54~~, which tends to spin onto itself because of the rotation imparted by the propeller.

The annular cowlings 5 and 7 can also have mutually different profiles and their shape and thickness ~~is~~ are optimised optimized in order to ~~minimise~~ minimize air resistance.

please amend the paragraph bridging pages 3 and 4 to read as follows:

The choice of the ducted rotors 1 and 2 is linked to the advantages of this configuration with respect to the case of non ducted propellers, both in terms of operating noise reduction, and for the purposes of the protection due to the fact that the propellers 4 and 6 are confined within respective rigid structures 5, 7 and ~~allow to reduce~~ permit reduction of the overall dimensions of the aircraft for the same thrust developed by the ducted rotors relative to free propellers.

Moreover, the cascade coupling of the two ducted rotors 1, 2 increases thrusting efficiency

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relative to total power developed. By way of indication, the two ducted rotors 1, 2 axially distanced from each other are more efficient (about 40% less power required) than a system with counter-rotating blades of a same ducted rotor.

Page 4, please amend the first full paragraph to read as follows:

The propellers 4, 6 are commanded to rotate in opposite directions to eliminate the twisting moments generated in operation. To drive the propellers 4, 6, respective motors are provided, conveniently of the electric type, for instance able to develop a power in the order of 5 – 10 W each and to drive the rotation of the respective propellers at 4,000 – 5,000 rpm. ~~Sid~~ The motors, schematically indicated as 8 and 9, are housed at the ends of the fuselage 3 and could also be constituted by combustion engines, particularly micro-combustors with ink-jet injection (i.e. of the kind used in ink-jet printers to eject ink droplets).

Page 5, please amend the fourth paragraph as follows:

This type of configuration allows to ~~maximise~~ maximize available wing surface area, reducing the stalling speed of the aircraft, thereby allowing it to fly even at low speeds.

Moreover, this configuration enables to improve flows between the first and the second ducted rotors 1, 2 because the rotation of the airflows of the first propeller 4 is hindered and they are correctly conveyed onto the second propeller 6.

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Page 6, please amend the first full paragraph to read as follows:

The angle of attack of the wing profiles 10, 11 is the optimal one, able to assure the best ratio between lift and drag (maximum C_l/C_d). For instance, ~~using,~~ using a symmetrical NACA 0009 profile, optimal angle of attack is around 6° - 8° .

please amend the fifth paragraph to read as follows:

The wing profiles 10, 11 are joined in correspondence with the respective ends radially internal to the fuselage 3, and in correspondence with the respective ends radially external to the cowlings 5 of the two ducted rotors 1, 2, directly or by means of axial connecting baffle plates 12 between said cowlings 5 and ~~6~~7.

Page 7, please amend the paragraph bridging pages 7 and 8 to read as follows:

According to a variation not shown herein, one ~~ore~~or more flaps 16 can also be provided in correspondence with a sunburst-like structure 18 borne by the cowling 7 of the second ducted rotor 2 below the associated propeller 6. In this case, the operating principle corresponds to the one described with reference to the flaps 16, but in relation to the airflow exiting the propeller 16 which is thus fully deviated towards the ground, thereby generating the desired ground effect.

Page 9, please amend the third paragraph to read as follows:

The aircraft according to the invention can be built from several innovative materials. An example consists of composite carbon ~~fi~~bre-fiber materials, able to offer greater structural rigidity and more limited weight than do traditional materials such as aluminium or titanium.

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~~BY~~ By way of example, matrices of structural polyurethane with Kevlar ~~fibres~~ fibers can have a density of less than $0.\text{g}/\text{cm}^3$ and for thickness of 1 mm, a weight of 0.2 kg per m^2 .